00000637

CORRES. CONTROL
OUTGOING LTR NO.

92-RF-3517

DIST.	LTR	ENC
BENJAMIN, A.		
BERMAN, H.S.		
BRANCH, D.B.		
BURLINGAME, A.H.		
CARNIVAL, G.J.		
COPP, R.D.		
CROUCHER, D.W.		
DAVIS, J.G.		
EVERED, J.E.	X	
FERRERA, D.W.		
GOODWIN, R.		
HANNI, B.J.		
HARMAN, J. K.		
HEALY, T.J.		
HILBIG, J.G.		
IDEKER, E.H.		
KERSH, J.M.	X	
KIRBY, W.A.		
KUESTER, A.W.		
KRIEG, D.		
LEE, E.M.	X	
MAJESTIC, J.R.		
MARX, G.E.		
McDONALD, M.M.		
MORGAN, R.V.	X	
POTTER, G.L.	X	
PIZZUTO, V.M.		
SANDLIN, N.B.		
SHEPLER, R.I.		
SULLIVAN, M.T.		
SWANSON, E.R.		
TALLMAN, K.G.		
WIEBE, J.S.		
[illegible]NSON, R.B.	X	
[illegible]ON, J. M.		
YOUNG, E.R.		
ZANE, J.O.		
Allhoff, FH	x	
Kennedy, CE	x	
[redacted]		
Jemison, EA	X	
Johnston, LD	X	
Smith, TA		
O'Rourke TP	X	
Dag RT	X	
Bulge PS	X	
E&WM Tracking	X	
CORRES CONTROL	x	x
TRAFFIC		

CLASSIFICATION:

UCNI		
UNCLASSIFIED		
CONFIDENTIAL		
SECRET		

AUTHORIZED CLASSIFIER SIGNATURE
Not applicable per classification office exemption.
DATE

IN REPLY TO LTR NO.

PC#
LTR APPROVALS:
RTO: RIO
PSB: PO
ORIG & TYPIST INITIALS
1/10 TPO/dmf

EG&G ROCKY FLATS

EG&G ROCKY FLATS, INC.
ROCKY FLATS PLANT, P.O. BOX 464, GOLDEN, COLORADO 80402-0464 • (303) 966-7000

March 26, 1992

92-RF-3517

Robert M. Nelson, Jr.
Manager
DOE, RFO

Attn: F. R. Lockhart

RESPONSE TO COMMENTS FROM EPA AND CDH REVIEW OF THE FINAL PHASE I RFI/RI WORK PLAN FOR OU 11 - JEE-0233-92

Ref: G. W. Baughman ltr to F. R. Lockhart, Final Phase I RFI/RI Work Plan, West Spray Field, (Operable Unit No. 11), U. S. Department of Energy, Rocky Flats Plant, December 18, 1991, dated January 30, 1992

Enclosed is the response summary to comments from the January 30, 1992 review by the Environmental Protection Agency (EPA) and the Colorado Department of Health (CDH) of the Final Phase I RCRA Facilities Investigation/Remedial Investigation (RFI/RI) Work Plan for Operable Unit No. 11 (OU 11), West Spray Field. The revised text was transmitted to EPA and CDH on March 16, 1992.

If you have questions or concerns regarding this transmittal, please contact T. P. O'Rourke of the Remediation Programs Division at extension 5945.

J. E. Evered, Director
Environmental Management

TPO:dmf

Orig. and 1 cc - R. M. Nelson, Jr.

Enclosures:
As Stated

cc:
R. H. Birk - DOE, RFO

U M

REVIEWED FOR CLASSIFICATION/UCNI
BY G. T. Ostdiek
DATE 8-25-93

ADMIN RECORD

Responses to Colorado Department of Health Comments

Cover Letter Comments:

Bullet 1:
An analysis of existing soils data was conducted per U.S. EPA Guidance for Data Useability in Risk Assessment in order to derive a statistically founded Field Sampling Plan and is presented in Section 7.2. A coefficient of variation was calculated for the 1988 test pit data. The coefficient of variation was then employed in calculating the minimum number of samples needed to meet statistical needs. In addition, minimal performance objectives of confidence, power, and minimum detectable relative difference were applied to the analysis.
The calculations performed indicated that 46 surface soil samples were necessary to meet this requirement. As approximately 75 grid soil samples and 16 judgmental samples were previously proposed, no changes were made to the original sampling approach.

Bullet 2:
Please see response to comments in Section 2.3.2.5.

Bullet 3:
The collection procedure for test pit soil samples has been elaborated on and now specifically addresses the method for collecting volatile and semivolatile organic samples.

Bullet 4:
The work plan did not attempt to draw any conclusions regarding radionuclide soil data. The discussion was only meant to indicate that the data was highly variable and in need further support through a more extensive sampling effort as proposed in the work plan.

Bullet 5:
The plans now states that if contamination is found in any of the test pits samples taken from the A, B, or C soil horizons, then boreholes will be added to the Work Plan.

Bullet 6:
Please see the response to comments in Section 2.3.2.5.

Bullet 7:
Inconsistencies between work plan objectives, the narrative sections and supporting tables were reviewed and modified where necessary. The activities needed to meet the work plan objectives were also modified where necessary.

Bullet 8:
Please see response to comments in Section 7.1.

Bullet 9:
The text has been clarified to show that both gamma and non-gamma emitting radionuclides will be analyzed in vertical profile soil samples.

Bullet 10:
The sampling protocols for surficial soil sampling have been revised for clarity.

Bullet 11:
Please see the response to comments under Section 7.1.

Bullet 12:
Samples which are to be collected in historic drainage channels are now referred to as soil samples rather than sediment samples. The number of these samples should now be correctly referred to in the text. All soil sample sites designed to sample in areas of former water flow are now located in the historic drainage channels, however, several sample sites were left outside of these flow channels in order to provide additional coverage of spray application areas. Regarding the test pit locations, several test pits were left along historic drainage channels in order to determine if additional infiltration to subsurface soils may have occurred in relation to non-flow areas.

Bullet 13:
The Baseline Risk Assessment Plan contained in Section 8.0 of the Work Plan has been modified to state that exposure at the source, for both existing and potential future land use, will be evaluated during the Phase I portion of the RFI/RI.

Bullet 14:
The suggestion of additional pesticide, dioxin and PCB data in the environmental evaluation was deleted. A re-review of available information determined that this additional information was not necessary.

Executive Summary:
The text has been changed to include the soil sampling task associated with the radiation survey.

Section 1.2:
The typographical error was corrected.

Section 1.3.3.2:
The last sentence of this section was deleted. Upon completion of the work plan activities and other on-going geologic studies, it is anticipated that there will be a greater understanding of the West Spray Field geology and RFI/RI report can be written to reflect this increased understanding.

Section 2.2.1.2:
Each of the figures have been revised to portray the site features more accurately.

Section 2.3.2.4:
This section now acknowledges that undetectable levels of plutonium in wastewater may have been concentrated to above background levels through evaporation of the spray water. Additionally, a statement was added that indicates that the plutonium previously detected in the soils may also have been the result of windborn material which migrated from the 903 pad area.

Section 2.3.2.5:
The text now states that borehole drilling will be conducted if contamination is determined to be present in the soil samples collected from test pits regardless of the depth of contamination. The soil data will be compared with the Background Geochemical Characterization Report data to determine the presence or absence of contamination. The method of statistical comparison is provided in the Background Geochemical Characterization Report. The data evaluation will be performed in a timely manner so as to develop and implement a borehole sampling program to provide a RFI/RI report as required by the IAG schedules.

Section 2.3.3.4:
Comment acknowledged, boreholes are a Phase II activity.

Figure 2-10:
The Conceptual Model diagram was modified to remove an extra line that was inadvertently placed between the Primary Release Mechanism and Transport Media Columns. In addition, sediment was concluded to be an inappropriate contaminant source for the West Spray Field and was removed from the Conceptual Model and the corresponding discussions in the text. Surficial soils are now represented as the primary source of potential contamination. Surface water as a transport medium was also modified within the Conceptual Model. Runoff associated with precipitation events and the raw water pond located southeast of the West Spray Field are now presented as the only release mechanisms associated with surface water. Therefore, the issue raised by CDH regarding re-suspension/dissolution of sediments in surface water no longer applies to the modified Conceptual Model.

Under the same comment, it was expressed that "vadose water" is a transport media of concern as opposed to the "vadose zone." Therefore, the Conceptual model figure and corresponding text were modified to indicate that vadose water and vadose soils (or subsurface soils) are potential transport media. The comment also stated that vadose water could allow movement of potential contaminants back into contaminated soils and sediments and into uncomtaminated soils and sediments through infiltration/percolation and seepage. The Conceptual Model now indicates that vadose soils and subsurface soils can be impacted through infiltration/percolation, however, the possibility that vadose water would impact sediments is not relevant to the West Spray Field.

Section 3.0:
Comment acknowledged.

Section 4.1.2.2:
The Work Plan was re-written to clarify that hydrologic issues within the West Spray Field area are limited to runoff of spray-applied water and precipitation. Spray application has not occurred at the site for over five years and precipitation runoff does not warrant a detailed evaluation.

Section 4.1.4:
In response to the general comment, the text in Sections 4.1 and 7.1 and Tables 4.1 and 7.1 have been changed for consistency and clarification in activities to be performed.

Bullet 1:
According to the research performed on the number of lines actually used for spray irrigation in the West Spray Field, only three were utilized, thus, figures in the Final Work Plan reflect usage of the three lines. The June 1990 Draft RFI/RI Work Plan was also meant to show three irrigation lines, however, the figure was somewhat unclear and appeared to show seven lines. With regard to the raw water storage pond, sampling of the pond is not included as the pond is already sampled on a periodic basis by EG&G.

Bullet 2:
The text has been changed to reflect that the test pits will be deep enough to encounter caliche stringers, if present. The presence of caliche in test pits will be noted during geologic characterization of test pits. This information will be evaluated with the information from previously logged boreholes to determine the potential impact caliche may have on contaminant migration.

Bullet 3:
The permeability of subsurface materials will be determined by collecting a field sample and running density tests followed by a falling head permeability test.

Bullet 4:
The activity to determine background is based on evaluating the data obtained under this work plan with that collected and evaluated in the Background Geochemical Characterization Report. The method(s) of comparison are provided in the Background Geochemical Characterization Report.

Section 4.3:
The reference to pore water sampling has been removed from the text and tables.

Table 4-1:
Pertinent detailed subsurface geologic information from the ongoing site-wide geologic characterization reports will be evaluated for the purposes of the OU11 RFI/RI investigation. Regarding the background samples, please refer to the response to comment under Section 4.1.4.

Section 5.3.3: The text now states that soil sampling results associated with the radiation survey will be to determine the presence or absence of gamma and non-gamma emitting radionuclides. Surficial soil samples will also be collected for non-radionuclide analyses as outlined in the FSP.

Section 5.5.2:

Bullet 1:
The text now states that an additional use for the data is to determine the need for and locations of vadose zone boreholes.

Bullet 2:
The text (Section 7) references the Background Geochemical Characterization Report which provides detailed methodology for statistical evaluation of data with background data. Also, see

5

please see response to comment 2.3.2.5.

Section 7.1:

Paragraph 1: The location of past irrigation lines has already been determined and is presented in Section 2 of the text. The reference to the irrigation lines has been deleted from the current text.

Paragraph 2: The text has been changed so that previous references to sediment sampling objectives in Sections 4 and 7 are now referenced as surficial soil sampling objectives. The rationale for the change is that sediment development in the surface runoff channels may not be comparable to that in the stream channels. The sample methodology for collecting surficial samples will be applied to the surface water runoff channels to assure collection of adequate sample and representation of site conditions.

Section 7.2:
The words "for radionuclide analyses" has been added to the text to distinguish between the soil sampling activity associated with the radiation survey and the soil sampling activity associated with the inorganic sampling.

Section 7.3:
Please see the comment under bullet 2, Section 7.1.

Section 7.3.1:

Bullet 1:
The text now acknowledges the possibility of contaminant concentration through solar evaporation.

Bullet 2:
The text now states that soil samples shall be taken to augment the radiation survey and will be used to analyze for gamma and non-gamma emitting radionuclides.

Bullets 3 and 4:
A technical memorandum will be submitted to the regulatory agencies providing the results of the radiation survey and the proposed locations for soil samples. Samples will be collected to determine the presence or absence of gamma and non-gamma emitting radionuclides. Two types of samples will be collected: 1. vertical profile samples to model the distribution of radionuclides in the subsurface and 2. grab samples to verify the radiation survey results.

Bullet 5 (Surficial Sampling):
The text has been modified to clarify the differences between the surficial soil samples collected for radionuclide analyses and those for inorganic analyses. The sampling protocols for collection of surficial soil samples for non-radionuclide analyses are provided in greater detail within the FSP.

6

Section 7.3.2:
The reference to pore water samples has been removed.

Section 7.3.3:
The berms have now been shown on Figure 2-8 as requested. Additionally, a sediment sample point (now referred to as soil) has been moved to the upstream side of the first berm as requested.

Section 7.4.2:
The reference to the tables has been corrected.

Table 7-1:
Paragraph 1:
The reference to the number of test pit sample points has been changed to indicate 16 locations with three samples per location.

Paragraph 2:
The term vadose zone has been changed to vadose water.

Table 7-2:
The corrections have been made to Table 7-2 as stated in the comments.

Figure 7-2:
Please see the response to comments under Section 7.1 in regard to sediments. The Figure 7-2 has been modified to reflect the locations of surficial soil samples that will be collected along historic surface water runoff channels. The rationale for the surface soil sampling protocol is presented in the FSP.

Section 8.2.2:
The text was amended to clarify that the 1986 soils data for the West Spray Field were considered invalid. The 1988 test pit data were considered to meet validation criteria, with the exception of volatile organic compound results.

Section 8.3.2:
The Work Plan was modified to indicate that vadose water could be impacted via infiltration and subsequently impact subsurface or vadose soils.

Section 8.3.5:
The text was modified to indicate that the intent of the Phase I portion of the RFI/RI is to define potential exposure at the source of contamination.

Section 9.2.1.1:
The majority of the appendices from the draft work plan has now been included in the final work plan.

7

Section 9.2.1.4:
A reference to OU6 has been added to the discussion.

Section 9.3.1.2
The reference to PCB and dioxin contamination has been deleted. It should not have been included in the final work plan.

Section 9.4.1:
The reference to Section 9.3 has been changed to 9.5.

Section 9.5.2.1:
The reference to SOPs has been changed to EMD Operating Procedures.

Responses to EPA Comments

General Comments

Comment 1:
A statistical analysis of existing data was conducted and is discussed in Section 7.2 of the Work Plan. The analysis was conducted in order to determine the minimal number of surficial and shallow soil samples needed to meet the minimum data useability criteria. The minimal performance objectives outlined within the guidance (Confidence 80%, Power of 90%, Minimum Detectable Difference 20%) were applied.

Comment 2:
The cone penetrometer test proposed for OU7 was evaluated for OU11. It was determined that this test method would no be useable for the surficial materials in the West Spray Field due to the presence of cobble or larger-sized boulders.

Comment 3:
The Baseline Risk Assessment Plan (Section 8.0) was modified slightly to incorporate additional West Spray Field-specific data and information. Portions of the BRAP still remain generic in nature. As stated in Section 8.0, however, many of the specifics issues regarding the Baseline Risk Assessment will be addressed in detail within the four technical memoranda required under the IAG. The portion of the Baseline Risk Assessment that will be addressed within the technical memoranda are presented within the Work Plan.

Comment 4:
The potentially affected areas in the Women Creek and Walnut Creek drainages are included in the maps submitted within the EE. While not designated on the maps they are described in the text as potentially affected areas.

Specific Comments

Executive Summary:
The discussion of the vadose zone was corrected to include semivolatile organic compound analysis.

Sections 4.1.4 and 5.5.2:
The Background Geochemical Characterization Report will be the basis for comparison of data to background. The method(s) of comparison are presented in the Background Geochemical Characterization Report.

Section 4.1.4:
The words "...will be addressed in Phase II" were added to the text.

Section 7.1:
The reference to pore water sampling has been deleted from the text.

Section 7.3.1:
The rationale for collection of soil samples associated with the radiation survey is now provided in the FSP. The EMD-OPs describing the for methods for sample collection are currently under development and will be submitted to the regulatory agencies for approval prior to implementation.

Section 7.3.2:
The procedures to minimize soil disturbance during sample collection of VOC samples in test pits is now provided in the text. The samples will not be collected and composited but will be collected using a shelby tube to minimize volatilization of the sample contents.

Section 8.2.3:
Clarification was provided to this section to emphasize that the selection of contaminants of concern and supporting rationale for compound inclusion or elimination will follow U.S. EPA guidance. In addition, the Work Plan states that the contaminants of concern and selection or elimination rationale will be clearly presented within one of the four Baseline Risk Assessment technical memoranda required by the IAG.

Section 8.3.4:
The comment states that on-site potential receptors, such as workers, should be identified and that off-site potential receptors that are currently known should also be identified. The text was modified to indicate that potential on-site receptors include workers, and potential residents and recreators under possible future use scenarios. The identification of off-site receptors will be addressed in the Phase II portion of the RFI/RI, which is stated within the Work Plan text.

Section 8.3.6:
The method for determining radioactive exposure estimation was obtained from the Superfund Risk Assessment Guidance document and is now discussed more clearly within the Work Plan text.

Section 8.4:
A statement was added to the text that the EPA Environmental Criteria and Assessment Office would be contacted if toxicity values cannot be obtained through IRIS or HEAST.

Section 9.2.1.2:
The statement regarding radionuclide concentrations (americium and plutonium) not being above background levels was revised to indicate that these radionuclides did exceed background. A sentence was also added that discussed the high variability of the radionuclides and how further sampling is required to establish accurate estimates of soil radionuclide concentrations at OU11.

10/10